SPRING GARDEN ROAD

Schematic Design Accessibility Audit

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Contents

1.0 Introduction

The following report provides a preliminary accessibility audit of the proposed Schematic Design for Spring Garden Road. This report is preliminary as much of the detail required for a full accessibility audit is absent from the Schematic Design. The report compares the Schematic Design and existing condition against best practices for the specific element being assessed. These best practices include the Canadian Standards Association (CSA) Built Environment Standards, The Canadian National Institute for the Blind (CNIB) "Clearing Our Path" guidelines, and Universal Design best practices (UDBP)outlined by the Rick Hansen Foundation Built Environment Standards.

The following built environment elements were assessed:

1. Accessible Parking Spaces
2. Pavement/Sidewalk Treatment
3. Intersection Design
4. Street Furniture/Amenity Space
5. Transit Stop Design
6. Lighting

Each element section contains a comparison table followed by additional considerations to assist in the detailed design phase.

The second part of this report highlights five key recommendations to improve the overall accessibility of the proposed schematic design. These recommendations are meant to establish a baseline of accessible infrastructure. Additionally, Appendix A highlights, visually, areas for improvement.

2.0 Element Specific Guidance

2.1 Accessible Parking Spaces

The commercial section of the Spring Garden Area, bounded by South Park Street, Clyde Street, Queen Street, and Sackville Street, currently has six accessible parking spaces. Spaces are delineated by post signs as required by Section 145(2) of the Motor Vehicle Act. Spots do not have pavement markings to indicate they are accessible spots as this is not required by the Motor Vehicle Act. Spots do not have adjacent curb ramps for sidewalk access for rear loading accessible vehicles.

- Four spots are located on slopes of varying steepness
- Two spots are located directly on Spring Garden Road however sidewalk access is limited to curb ramps located at intersections.
- 5 out of 6 spots located on the right side of the street to permit side ramp/people transfer from a van

The proposed design maintains many of the existing spots and introduces three additional accessible parking spaces. The following table outlines universal design best practices for accessible parking spaces and provides commentary around the existing and proposed parking layout and comments for improvement.

Comparison Table – Accessible Parking

	Guidance	Existing Condition Meets Guidance	Schematic Design Meets Guidance	Comments for Improvement
AP-1	Locate accessible parking spaces as close as possible to an accessible entrance and integrate with an accessible route. (CSA)	Current parking spaces are located close to accessible entrances	Proposed parking spaces are located close to accessible entrances – No accessible spots on Clyde Street to service Mary Anne/ Margaretta Building	Consider additional accessible parking spots on Clyde Street to service existing and future commercial development.
AP-2	Identified with a sign and/or other markings identifying it for use by persons with a disability.(CSA)	Pole signage exists	Schematic design is unclear	Consider pole signage and pavement marking to indicate accessible spots.
AP-3	Provides unencumbered side access to an elevated sidewalk with a curb with no obstructions for most of the length of the stall. (CSA)	Most provide unencumbered access; however, the Dresden Row accessible spot is encumbered by a tree. Most of the lone Birmingham Street accessible spot is unencumbered, however a bike rack and power pole anchor are present.	Schematic design shows Brenton Street accessible parking space blocked by bike racks. However, accessible space is on the left side of the street, it should be on the right. North Dresden spot looks to be encumbered by a tree. Brenton Street spots are encumbered by bike racks.	Ensure accessible parking spaces are unencumbered by amenity space elements.
AP-4	Provided with safe access to sidewalk with a curb ramp at rear end of stall or immediately behind stall; does not require a person to transit past other vehicles in traffic lanes to access sidewalk. (CSA)	No curb ramps provided within parking stall boundaries or immediately behind.	No curb ramps provided within parking stall boundaries or immediately behind are indicated in the schematic design.	Provide curb ramps within parking stall boundaries or immediately behind stall.
AP-5	Located on right side of street to permit side ramp/people transfer from a van. (CSA)	Six of the seven existing spots are located on the right side of the street. The Brenton Street spot is located on the left side of the street	The Brenton Street and South Dresden Row accessible spots are located on the left side of the road.	Consider switching the Brenton Street and South Dresden Row accessible spots to the right side of the road or provide access aisles for safe transfer for people who use mobility aids.
AP-6	Minimum length of 7.5 meters to accommodate vehicle and rear-access ramp. (CSA)	Existing spaces seem to exceed the minimum length; however, spots do not have pavement marking to indicate size.	Proposed spots meet the minimum length except the Birmingham Street and Artillery Place Spots	Ensure accessible spots are a minimum of 7 metres and are sufficiently delineated.
AP-7	Provide a stable, slip resistant, level surface for accessing and egressing from vehicle. (CSA)	Existing Condition meets guidance	Schematic Design appears to meet guidance.	

Considerations for detailed design

Access aisles: For parking spaces located on the left side of the right of way, consider providing access aisles at least 1500 mm wide next to accessible on-street parking spaces to facilitate safe transfers for people who use mobility aids (Figure 1). Wider access aisles will better accommodate vans with mechanical lifts. Also consider that the person using the mobility aid may be the driver. Access aisles should be located on the right side of the parking space, adjacent to the curb.

Curb ramps: Consider a curb ramp to allow people who use mobility aids to safely move from the road to the adjacent sidewalk (Figure 1). Locate curb ramps so that people who use mobility aids do not have to travel along a vehicle roadway from the parked vehicle to the curb ramp.

Pavement markings: Consider pavement markings to clearly define vehicle parking spaces and any adjacent access aisles. Pavement sign: Consider including a pavement sign with the International Symbol of Access which enhances the visibility of accessible parking spaces and discourages inappropriate use. Consider pavement signs at least 1,000 mm long and with high tonal contrast to the surface of the parking space. Pavement markings should be slip-resistant.

Loading Zones: Consider providing an Access Aisle, High Contrast Bollards, Attention TWSI's, particularly at rolled curbs, and guidance TWSI's for loading zone access and egress. (Figure 2).

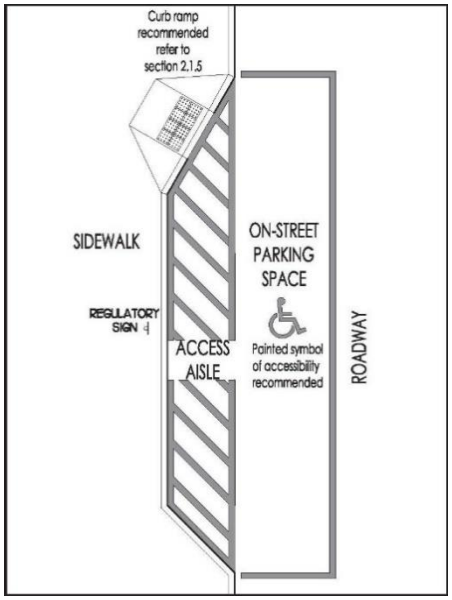

Figure 1: Accessible Parallel Parking Space (Source: Global Alliance on Accessible Technologies and Environments)

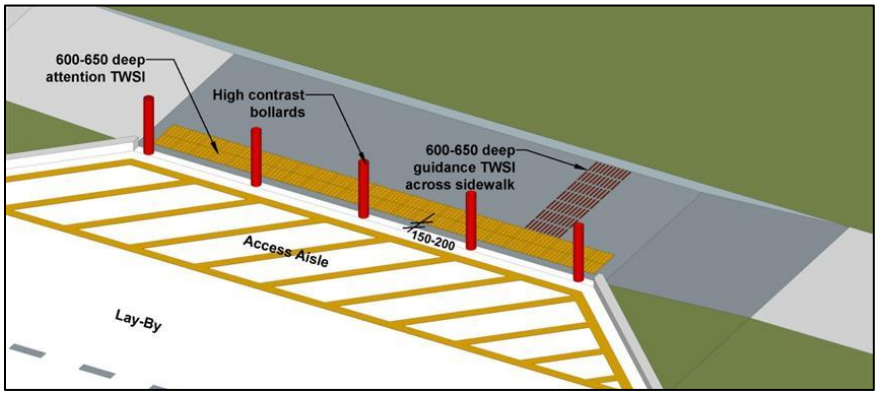

Figure 2: Accessible Loading Zone (Source: CNIB Clearing Our Path)

2.2 Pavement/Sidewalk Treatment

The existing sidewalk treatment is made of contraction jointed concrete. The width of the path of travel varies but generally meets best practices for accessible width without any obstructions. However, conflicting uses (i.e. path of travel and transit stop) reduce the clear path of the sidewalk. The proposed Schematic Design increases the clear width of the path of travel and replaces the contraction jointed concrete with smaller concrete pavers.

Comparison Table – Pavement/Sidewalk Treatment

	Guidance	Existing Condition Meets Guidance	Schematic Design Meets Guidance	Comments for Improvement
PS-1	Surface is firm, stable, and slip resistant. (CSA)	Existing sidewalk is firm, stable and slip resistant.	Schematic Design indicates materials to be used will be firm, stable and slip resistant.	
PS-2	Clear width is a minimum of 1,500mm, ideally 1,800mm (CSA)	Clear width is sufficient. However, where pathways intersect with transit stops, clear width is reduced to below the minimum requirement.	Schematic design meets clear width requirements.	
PS-3	Running slope is no steeper than 1:20 (5%), ideally 1:50 (2%) (CSA)	Running slope meets requirements.	Schematic design does not indicate running slope.	Ensure running slope is no steeper than 1:20 (5%), ideally 1:50 (2%).
PS-4	Cross Slope is no steeper than 1:20 (5%), ideally 1:50 (2%) (CSA)	Cross slope meets requirements.	Schematic design does not indicate running slope.	Ensure cross slope is no steeper than 1:20 (5%), ideally 1:50 (2%).
PS-5	Clear Height: Minimum 2,100mm (CSA)	Clear Height requirements are met.	Schematic design does not indicate that there is any issue with providing sufficient clear height. However, tree cover could reduce the clear height.	Ensure clear height on the pathway is a minimum 2,100mm.
PS-6	Entry Point to a sidewalk or walkway: Minimum clear opening of 1500mm (i.e. gate, bollards) (CSA)	Entry point requirements are met.	Entry point requirements are met.	
PS-7	Surface openings (i.e. between pavers): Surface openings between pavers must not be greater than 20mm in length, ideally no more than 12mm in length. (CNIB)	Surface opening requirements are met.	Schematic design does not indicate the surface opening between pavers.	Ensure surface opening between pavers meet or exceed minimum requirements.

Considerations for detailed design

Surface Using textural and tonal contrast on ground surfaces will help define primary routes and assist with wayfinding. Use different tone or material to emphasize the difference in function of the amenity zone. Tonal difference should be at least 70% contrast (Figure 3). Careful consideration should be given to reduce the use of dark colours on pathways as this can look like a hole for some people with vision impairments. If patterns are used, simplicity and subdued colours are crucial as complex or bright patterns can trigger anxiety in people that are prone to it.

Sandwich Boards & Signage: Consider possible obstructions once the path is in regular use. Items such sandwich boards and other signs can find their way onto what were previously well-designed accessible paths. Providing space for these items may alleviate objects in the right of way.

Patios: The path of travel around restaurant patios, located in the typical path of travel, should be separated from the patio by a cane-detectable barrier (Figure 4). Cane detectable barriers should have tonal contrast to the typical path of travel.

Figure 3: Path of Travel contrasted with Amenity Zone (Source: Google Images)

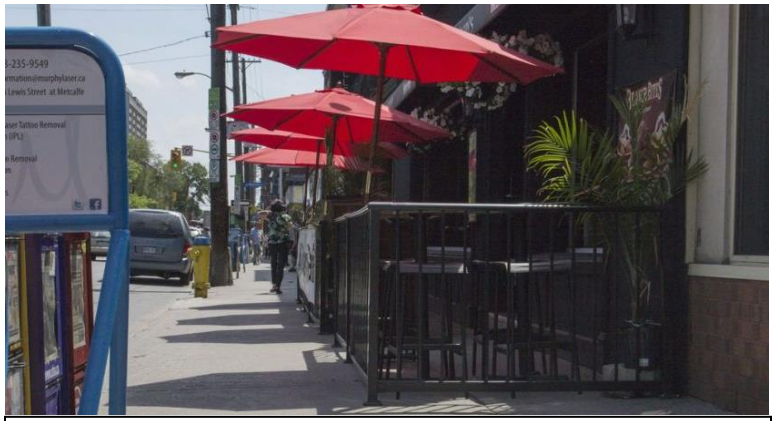

Figure 4: Cane Detectable Patio (Source: Google Images)

2.3 Intersection Design

Intersection treatments along Spring Garden Road vary. The predominant pedestrian crossing is a depressed curb without a Tactile Walking Surface Indicator (TWSI). The north east corner of the intersection of Queen and Spring Garden utilizes a wraparound TWSI, and the intersection of Spring Garden and South Park utilizes traditional curb cuts (without TWSI's). The Schematic Design indicates traditional curb cuts. While the Schematic Design report indicates the intention to use TWSI's at intersections, the type (flat or radial) is not indicated and the Schematic Design Plan does not identify their placement.

Comparison Table – Intersection Design

	Guidance	Existing Condition Meets Guidance	Schematic Design Meets Guidance	Comments for improvement
ID-1	Running slope cannot be greater than 1:20 (5%). 1:50 (2%) is ideal. (CSA)	Existing Condition meets guidance minimum.	Schematic design does not indicate running slope. However, renders look to meet guidance.	Consider the use of different ground finish materials to differentiate the curb ramp from the sidewalk.
ID-2	Flared sides that have a slope, measured parallel to the curb line, with a ratio between 1:10 (10%) and 1:15 (6.66%) (CSA)	Existing condition meets guidance minimum.	Schematic design seems to meet guidance	
ID-3	Clear width is a minimum 1,500 mm (recommended 1,800mm) (CSA)	Existing condition meets guidance minimum.	Schematic Design meets guidance minimum.	
ID-4	Curb ramps are required at all crossings to provide access for pedestrians who use wheelchairs or who cannot step off a curb. (CSA)	Existing condition meets guidance minimum.	Schematic Design does not indicate curb ramps. However, renders look to meet guidance.	
ID-5	Separate curb ramp should be provided for each crosswalk. (CSA)	50% of curb ramps meet minimum guidance.	Schematic Design does not indicate curb ramps. However, renders look to meet guidance.	With a four-way intersection, there should be eight curb ramps; each independent of the other. This ensures a straight route of travel for all crossing paths.
ID-6	TWSI's must extend the full width of the curb ramp and a depth of between 600 and 650mm. (CSA)	TWSI's currently not installed at curb cuts.	Schematic Design does not indicate TWSI's.	Ensure TWSI's are implemented and meet minimum standards.
ID-7	A level landing/turning space is required at the top of a perpendicular ramp measuring at least 1350x1350mm. (CSA)	Existing condition meets guidance minimum.	Schematic Design meets guidance minimum.	This turning space may overlap other turning or clear spaces.
ID-8	The curb ramp should be aligned with the direction of travel of the crosswalk. (CSA, CNIB)	Existing condition uses wrap around depressed curbs. These do not align the pedestrian with the path of travel across a cross walk.	Schematic Design unclear about curb ramp alignment.	Ensure curb ramps are aligned with the direction of travel of the cross walk.

Considerations for Detailed Design

Mid-Block Crossings: When curb ramps are used at mid-block crossings, their presence should be identified using guidance TWSIs across the width of the sidewalk (Figure 5).

Depressed Curbs: Depressed curbs can be difficult to detect for individuals with partial sight, as the transition from a pedestrian sidewalk to a depressed curb may be subtle. If depressed curbs are being considered, provide appropriate tactile and colour-contrasted warnings to clearly delineate the boundary between pedestrian and vehicular areas. Avoid wrap around depressed curbs at the corners of intersections, which can misdirect individuals into the intersection rather than to the safe pedestrian crossing route.

Raised Pedestrian Crossings: Raised pedestrian crossings can be considered across roads with low traffic volumes. As with any pedestrian crossing, the safe walking route across the vehicular roadway must be clearly delineated on the road surface using pavement markings, such as high-contrast dashed lines or striping. It's also critical to use an attention TWSI across the entire width of the pedestrian entry points onto the crossing (Figure 6). This will ensure that people with vision impairments can identify the transition from the sidewalk to the pedestrian crossing. Where raised pedestrian crossings are used, marked bollards can serve to orient pedestrians with vision impairments to the safest line of travel across an intersection.

Crossing Signals: Consider pedestrian activated crossing signals (at all intersections, particularly those crossing Spring Garden Road. Crossing signals should have flashing white lights, and activation push buttons should be well contrasted in colour. All crossing signals should have audible signals.

Figure 5: Attention and Directional TWSI's at mid-block crossing (Source: Global Alliance on Accessible Technologies and Environments)

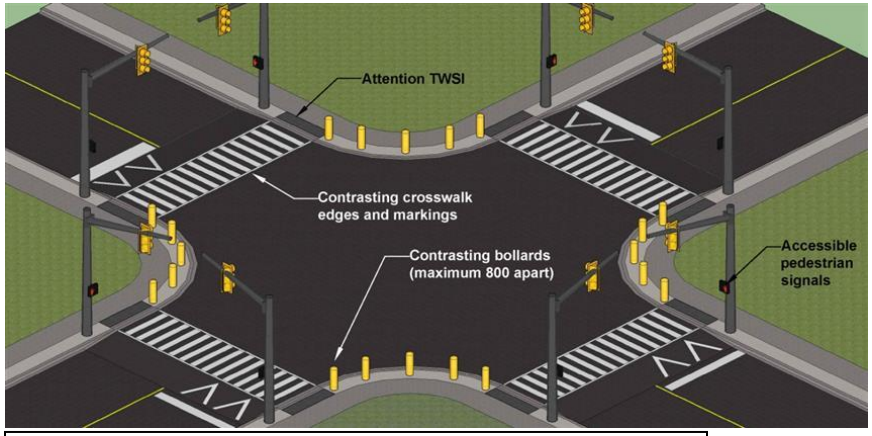

Figure 6: Example of Raised Pedestrian Crossings (Source: CNIB Clearing Our Path)

2.4 Street Furniture/ Amenity Space

There is currently no street furniture on the subject portion of Spring Garden Road. The Schematic Design plan indicates the use of prefabricated timber bench tops mounted on a custom natural stone bench base. The proposed benches are similar in colour to the path of travel and do not have a designated kick space.

Comparison Table – Street Furniture/Amenity Space

	Guidance	Existing Condition Meets Guidance	Schematic Design Meets Guidance	Comments for Improvement
SA-1	Place benches, garbage cans, planters, signs, bus stop shelters and other streetscape elements outside the path of travel – ideally in an amenity zone that is clearly differentiated from the path of travel using ground finishes that contrast in colour and texture. (CSA)	Amenities are located outside the path of travel. However, amenity zone is not clearly delineated.	Schematic Design clearly delineates amenity zone and amenities are located outside the path of travel.	
SA-2	Amenity zone is at least 300 mm wide, with a preferred width of 600 mm. (CNIB)	Existing condition meets guidance standard	Schematic Design exceeds guidance standard.	
SA-3	Elements of use to pedestrians (e.g., benches and waste receptacles) located near the path of travel should be within 600 mm of the edge of the pathway so that a person using a long cane can easily detect them. (CNIB)	Existing condition meets guidance standard.	Amenities are located within 600mm of the delineated amenity zone. Meets guidance standard.	
SA-4	Backrests should be available on seats, as well as some armrests. The ideal is a bench that is open on both ends, with an armrest placed in the middle (Figure 7). (CSA)	No permanent benches currently exist on Spring Garden Road.	Selected furniture in Schematic Design meets guidance criteria.	Ensure sufficient colour contrast (70%) between furniture and ground treatment.
SA-5	Minimum 80mm kick space at base of seating. (UDBP)	No permanent benches currently exist on Spring Garden Road.	Schematic Design furniture seems to be based on cement blocks. There is no kick space indicated.	Consider providing seating that provides adequate kick space underfoot.
SA-6	Provide areas where fixed chairs can be combined with moveable chairs, which will provide options for all users. (UDBP)	Not provided in existing condition.	Some seating options provided as part of the Schematic Design.	
SA-7	Seating should be provided at close intervals, and in most areas of travel, be available every 10m. (CSA)	No seating provided along Spring Garden Road as part of existing condition.	Schematic Design meets design guidance.	

Considerations for Detailed Design

Guide Dog Relief Areas: To accommodate guide dogs and other service animals, provide a grassy area or an area with a permeable surface as a relief area, as well as an easily located garbage can for the disposal of waste (Figure 8).

Provide a kick space under seating: Providing a kick space under seating allows for easier maneuvering and is more usable for all people (Figure 7). Additionally, consider armrest placement. Armrests should extend flush with the edge of the seat.

Figure 7: Bench with variety of seating options (i.e. Backrest, Armrest, Kick Space) (Source: Flickr)

Figure 8: Guide Dog Relief Area (Source: Google Images)

2.5 Transit Stop Design

Currently there is no dedicated waiting space for transit users on Spring Garden Road. The Schematic Design proposes full transit stops with dedicated shelters. The proposed shelters have bench seating and integrated transit route information.

Comparison Table – Transit Stop Design

	Guidance	Existing Condition Meets Guidance	Schematic Design Meets Guidance	Comments for Improvement
TS-1	A transit stop shall be identified with a distinctive visual and tactile stop pole, where the tactile element can be accessed at or below 1200 mm from the ground (Figure 10). (CNIB)	Existing condition does not have a tactile pole stop pole.	Unclear if schematic design meets guidance.	Ensure transit stop is identified by a visual symbol as well as a tactile element.
TS-2	A transit stop shall be identified with a tactile direction indicator at least 600 mm deep, extending the width of the pedestrian route. (CSA)	Existing condition does not meet guidance.	Schematic design does not meet guidance.	Ensure tactile directional indicators for transit stops extend the width of the path of travel.
TS-3	Have signage where routes are identified that provides the information visually, and either in braille and raised characters; or user or proximity-actuated audible signals. (CNIB)	Existing condition does not meet guidance.	Transit shelters indicate integrated transit timetables. Description of shelters does not indicate accessibility features.	Consider providing accessibility features at transit stops.
TS-4	A transit boarding or alighting area shall, when higher than 250 mm above the transit right-of-way, have a tactile attention indicator surface along the unprotected drop-off edge. (CSA)	Existing condition does not meet guidance	Schematic design does not indicate the presence of tactile attention indicators at transit stops	Ensure transit boarding and alighting areas have a tactile attention indicator surface.

Considerations for Detailed Design

Transit Shelter Clear Opening: Transit shelters should have a clear opening at least 1,000 mm wide at their entrance.

Seating: Seats in transit shelters should be colour contrasted with the ground and any other surfaces to be identifiable for with vision impairments.

Transparent Panels: The edges of all glass panels as part of a Transit Shelter should be marked with a colour-contrasting strip and have contrasting stripes at eye level (Figure 9). Glass panels should extend as close to the ground as possible so that panels are cane detectable.

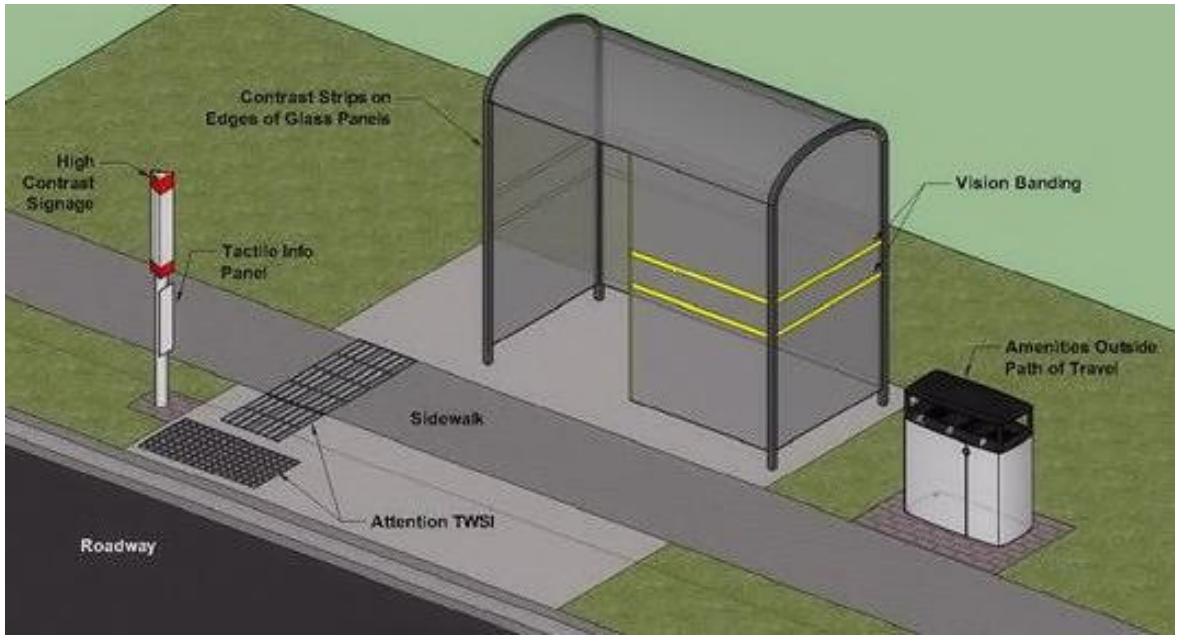

Figure 9: Accessible Transit Stop (CNIB Clearing Our Path)

Figure 10: Tactile stop pole (TS-1) (Google Images)

2.6 Lighting

Street lighting currently on Spring Garden Road does not provide enough coverage, or even distribution, along the street. The Schematic Design indicates an 18 average lux, the highest requirement outlined in the Illumination Engineering Society of North America RP-8-14 design guidelines.

Comparison Table - Lighting

	Guidance	Existing Condition Meets Guidance	Schematic Design Meets Guidance	Comments for Improvement
L-1	Ensure all lighting over pedestrian routes is evenly distributed and provides a reasonable colour spectrum while minimizing any shadows casted. (CSA)	Existing condition does not meet guidance. Light is not evenly dispersed.	Schematic Design does not indicate lighting distribution.	Ensure pedestrian lighting is evenly distributed and minimizes shadows.
L-2	Provide supplementary lighting to highlight all wayfinding signage, and changes in slope, as required. (UDBP)	Existing condition does not meet guidance.	Schematic Design does not indicate wayfinding lighting.	Provide additional lighting for wayfinding signage.
L-3	Ensure lighting fixtures or posts do not encroach on accessible routes / paths of travel. (CSA)	Existing condition is free from light fixtures impeding the path of travel.	Schematic Design is free from light fixtures impeding the path of travel.	
L-4	Ensure overhead light fixtures are mounted with clear headroom of 2100 mm. (CSA)	Existing condition meets guidance.	Schematic Design seems to meet guidance.	

Considerations for Detailed Design

Lighting Levels: The Canadian National Institute for the Blind (CNIB) recommends increasing Illuminating Engineering Society of North America suggested lighting levels by a range of 25 to 50 percent to address the needs of people with vision loss. The proposed average lux may be appropriate; however, special consideration should be given to even distribution of light.

3.0 Key Recommendations

1. **Maintain a tonal contrast between amenity zone and path of travel**
   Ensure 70% contrast between the path of travel and amenity zone. Consider using different tonal or textural features for different pedestrian amenities. The colour contrast between the path of travel's "Beige Gray" and the Amenity Zone's Cambrian Black" is sufficient, however using black as a surface colour can be challenging for people with vision impairments as the surface can be mistaken for a hole in the ground. The "meandering path" can be difficult to navigate for people with vision disabilities as it does not serve a functional purpose. Variations in the path of travel should serve a functional purpose.

2. **Install Attention Tactile Walking Surface Indicators (TWSI's) at crossing points and transit alighting and boarding areas.**
   Ensure attention TWSI's are placed at each crossing point, and bus boarding and alighting areas. Directional TWSI's should be used where a change in direction is possible (i.e. at a bus stop, mid block crossing, or curb bulb out where orientation is not clear). Pages 3 and 7 of Appendix A highlight generally appropriate TWSI place at mid-block crossings and bus stops respectively.

3. **Prioritize curb cuts over depressed curbs.**
   Curb cuts should exist at all street crossings. With a four-way intersection, there should be eight curb ramps: two for each corner, and each independent of the other. This ensures a straight route of travel for all crossing paths. Avoid depressed curbs unless each crossing point is delineated by bollards.

4. **Ensure transit stops are well signed and colour contrasted.**
   Transit Stops should be identifiable with directional and attention TWSI's. Additionally, Transit Stops should be well signed with visual or tactile information available at 1,200mm (+/- 150mm) above surface height. Transparent panels associated with transit shelters should be marked with a colour-contrasting strip and have contrasting stripes at eye level.

5. **Provide a variety of seating options and ensure seating and bollards are 70% colour contrasted with the path of travel.**
   Seating and bollards should be 70% tonally contrasted with the path of travel. Additionally, ensure that protrusions into the path of travel are contrasted as well. Ensure seating has kick space provided and is cane detectable.

Appendix A: Areas for Improvement

arden Road Enhancements video by Fathom Studio


arden Road Enhancements video by Fathom Studio
Not enough tonal contrast between bollards and path of travel. Consider yellow contrast (SA-1)
Not enough tonal contrast between path of travel and amenity zone. (SA-1)


arden Road Enhancements video by Fathom Studio
Mid-Block crossings require directional TWSI's across entire path of travel. (ID-4,6)


arden Road Enhancements video by Fathom Studio
Transit Shelters need attention striping on glass panels.
Glass should extend to ground.
Not enough tonal contrast between protrusion and path of travel. (SA-1)


arden Road Enhancements video by Fathom Studio
Nelson Place
Kick Space required
under benches
to allow for easy
maneuverability. (SA-5)


arden Road Enhancements video by Fathom Studio
Use tonal/texture contrast to indicate crossing points in open sections.
Use attention TWSI's at all crossing points. Consider directional TWSI's when crossing at open areas. (ID-6)

arden Road Enhancements video by Fathom Studio


arden Road Enhancements video by Fathom Studio
Absence of street lighting. (L-1)
Lounge Chairs are not cane detectable. (SA-3) Ensure the amenity zone has sufficient tonal/texture contrast to reduce conflicts.
Bike racks are not cane detectable. Provide sufficient barrier between elements or orient bike racks parrall to the path of travel. (SA-3)